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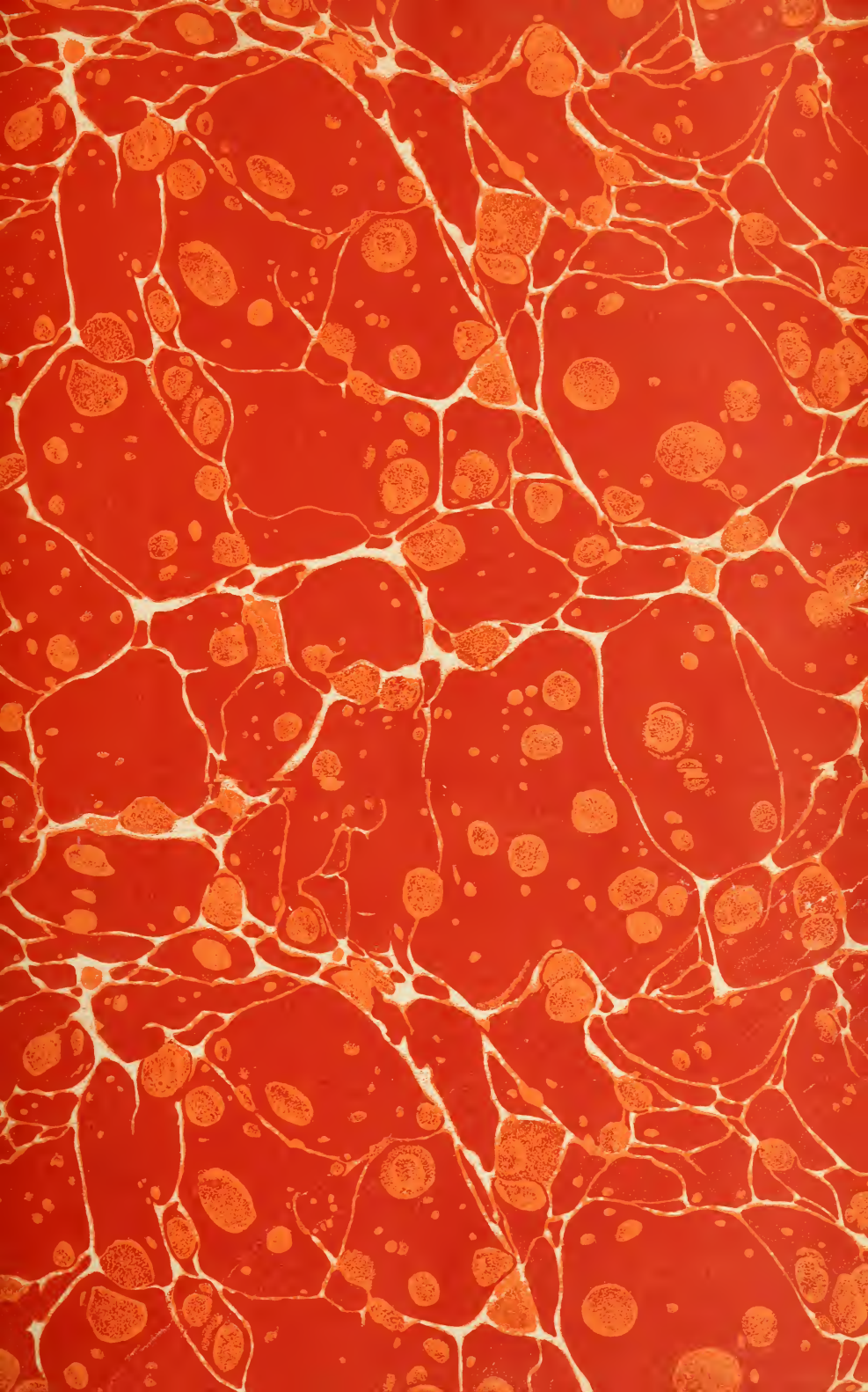
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JAPANESE FLOWERING CHERRIES

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HISTORY

Since ancient times the Japanese have looked on the flowering cherries with a feeling of admiration closely akin to reverence and have given the utmost care to growing and propagating the finer types. At the outset only the single-flowering types were known, but later the double-flowering kinds, which probably originated as sports, were given special attention and perpetuated by grafting. According to Miyoshi (4),² forms with double flowers were known in Japan over a thousand years ago, and the variety known as Fugenzo, now one of the commonest in cultivation in the United States, was grown by the Japanese at least 500 years ago. About the year 1800 a large collection of selected varieties had been assembled at Kyoto, Japan, through the efforts of the nobles of the court of the Emperor Tokugawa. Miyoshi further states that a collection of 78 varieties, represented by 1,000 trees, was brought together at the town of Kohuku, on the Arakawa River, in 1886, by Kengo Shimidsu, magistrate of the town.

The earliest introduction into Europe of a double-flowered Japanese cherry appears to have been in 1822, when Samuel Brookes, a nurseryman at Ball's Pond, Newington Green, England, introduced from Canton, China, a cherry with double white flowers. This was described in 1830 by the English botanist Lindley as *Prunus serrulata*. The wild single-flowered form of this variable species is reported to be growing wild from Hupeh, China, through Chosen to southern Japan. Miyoshi (4) considers this cherry to be the same species as the majority of the cultivated Japanese varieties. Soon after 1850 living plants of flowering cherries began to reach Europe from Japan, but, except for isolated specimens representing only a few varieties, these ornamental trees are still comparatively little known in that part of the world. Mention should be made, however, of

¹ The illustrations in this circular are from photographs made by Ernest L. Crandall (pls. 1-4) and C. M. Mansfield (pl. 5).

² Italic numbers in parentheses refer to "Literature cited," p. 8.

the Royal Botanic Gardens, Kew, England, where a number of the best varieties are to be found, and also of the large private collection of Collingwood Ingram (3) at Benenden, Kent, England, which is said to include nearly 70 varieties.

In the United States the first recorded introduction of the double-flowering cherries was in March, 1862, when George Rogers Hall (2, 5) brought in 15 varieties, giving them to Parsons & Co., Flushing, Long Island, N. Y. These apparently have since entirely disappeared. According to Wilson (7), of the Arnold Arboretum, Jamaica Plain, Mass., the first introduction of a single-flowering Japanese cherry was in 1890, when Dr. William S. Bigelow sent seeds of the Yamasakura variety (*Prunus serrulata sachalinensis*) to the Arnold Arboretum. One Pennsylvania nursery claims to have listed double-flowering varieties since 1890. In 1903 the Office of Foreign Plant Introduction of the Bureau of Plant Industry received from Japan, through the late Barbour Lathrop and David Fairchild, a collection of 30 named varieties of flowering cherries. In the following year a collection of 50 named varieties was received from the Yokohama Nursery Co., Yokohama, Japan. The propagation and distribution of these and later importations have been important factors in establishing the flowering cherries in the eastern United States. Increasing interest in these plants also led to their introduction, on a smaller scale, by private individuals, either from European nurseries or direct from Japan. In 1906 Doctor Fairchild introduced 25 of the best single-flowering and double-flowering varieties from Japan and planted them at his place in North Chevy Chase, Md., where many of them are still growing. The largest varietal collection of these cherries in this country has been assembled at the Arnold Arboretum, Jamaica Plain, Mass., and an excellent collection is also maintained at Highland Park, Rochester, N. Y.

Probably the best known and most popular collection, however, is that in Potomac Park, Washington, D. C. In 1912, through the generosity of the city of Tokyo, Japan, nearly 2,000 trees, including the best varieties known to Japanese horticulturists, were presented to the city of Washington and planted in Potomac Park. The earliest flowering variety of this collection, the Yoshino, which encircles the Tidal Basin with its nearly 1,000 trees, bursts into bloom usually late in March or early in April. The other 11 varieties growing along the East and West Drives open their flowers in rapid succession about the time the Yoshino has ceased blooming, making a continuous display for over a month.

During the last 10 years interest in these cherries has increased greatly, and more than a dozen nurseries, mostly in the eastern United States, are offering from 1 to 10 of the best varieties.

BOTANY

Nearly all the Japanese flowering cherries are derived from *Prunus serrulata* Lindl., although a number of excellent varieties may be referred to three other Japanese species of *Prunus*. All of these species are included in the group of cherries formerly classed under the genus *Cerasus*, in which the flowers are in umbellike clusters. Normally the flowers appear before the leaves, but occasionally individual trees develop leaves and flowers simultaneously. When the leaves develop first the peduncles of the flowers are much longer. Usually, before

the flowers have fallen, however, the young foliage has appeared. The color, pubescence, and serration of the young leaves assist in identifying the species, but the flowers are of most importance. The following key is based mainly on floral characters:

- Umbels sessile, bud scales up to one-sixteenth inch long, calyx tube usually swollen at base.....*Prunus subhirtella*.
- Umbels stalked, bud scales more than one-sixteenth inch long, calyx tube usually not swollen at base.
 - Pedicels and calyx tubes smooth; leaves smooth.
 - Leaves unfolding greenish brown; short aristate.....*P. serrulata*.
 - Leaves unfolding green or slightly reddish; long aristate.
 - P. serrulata* forma *lannesiana*.
 - Pedicels and calyx tubes hairy; leaves more or less hairy.
 - Flowers single, pedicels and calyx tubes densely hairy, leaves hairy only on veins of lower surface.....*P. yedoensis*.
 - Flowers double, pedicels and calyx tubes moderately hairy, leaves densely hairy, especially on lower surface.....*P. sieboldii*.

HORTICULTURAL VARIETIES

The blooming periods of the flowering cherries are greatly affected by seasonal conditions and weather fluctuations. A sudden lowering of temperature will hold the nearly opened flowers in check for several days, while a few unusually warm days in early spring develop the flowers with amazing rapidity. Within the group derived from a particular species, however, there is little difference in time between the blooming of the different varieties. The earliest group to open its flowers is that composed of varieties of *Prunus subhirtella*, although the Yoshino (*P. yedoensis*, pl. 1) blooms about the same time, which is late in March or early in April in the vicinity of Washington, D. C. A week or 10 days afterwards the many varieties of *P. serrulata* open their flowers, as does also the Naden (*P. sieboldii*). The fully opened flowers usually remain in attractive condition less than a week, especially if the weather is warm or if there are strong winds.

PRUNUS SERRULATA

From the species *Prunus serrulata* have been derived most of the cultivated varieties, of which over 100 are recognized by Japanese horticulturists and nearly 40 of which are listed by the Arnold Arboretum in the catalogue of plants growing at the arboretum (6). The differences which separate many of these are very slight, and it is impossible to distinguish them satisfactorily in a formal key. They may be roughly classed, however, by the color and form of the flowers, and within these groups the more commonly cultivated varieties are briefly characterized below. Unless otherwise mentioned, these all develop into upright-spreading trees about 20 feet in height.

DOUBLE PINK

One of the earliest bloomers in the double-pink group is Ichiyo (pl. 2), sometimes known as Hisakura, with light-pink flowers about $1\frac{3}{4}$ inches across, in clusters of three. With age the color becomes almost white, contrasting attractively with the bronze-colored young foliage.

The Fugenzo, known also as James H. Veitch and Kofugen, is probably the oldest cultivated variety, as previously mentioned. It develops into a large, stout, spreading tree about 35 feet high, proba-

bly the largest of any of the double varieties, and its light-pink flowers, about $1\frac{7}{8}$ inches wide, are in clusters of three and four. A closely related variety, Shirofugen, differs only in its lighter colored flowers. In both of these the buds are deep pink, with one or two green leafy carpels projecting, and the young foliage is bronze green.

In this group probably the finest variety, and one of the latest to bloom, is Kwanzan, known also as Kanzan, Sekizan, and Sekiyama. (Pl. 3.) The tree is upright in habit and becomes about 25 feet high. The truncate red buds show the projecting leafy carpels, as in Fugenzo, and the deep-pink flowers, about 2 inches across, are in pendent clusters of three or four. Closely resembling Kwanzan, but blooming slightly later and with the flower clusters more erect, is Kirin, likewise an excellent variety. Mention should be made here of Yedoza-kura, also a rather late bloomer, with light-pink flowers less double than those of Kwanzan. The petals are slightly wrinkled and are paler toward the center of the flower. Fukurokuju, a striking variety, has a rather stiff, upright habit, with a rounded compact crown. Its pale-pink flowers, nearly 2 inches across, are in threes and fours, with the clusters crowded toward the ends of the branches in a characteristic and attractive manner. The young foliage is bronze green.

The fastigate habit of Amanogawa, reminding one of the Lombardy poplar, together with its large delicate-pink fragrant flowers, less double than those of Fukurokuju, make it one of the most ornamental of the double-pink group. In the deep-pink color of its flowers Yaemurasaki resembles Kwanzan, but its flowers are only semidouble. A variety with very pale, nearly white flowers about 2 inches across is Ojochin; this is very attractive with its large loose flower clusters. The young foliage is brown. Gyoiko is a curious variety, odd rather than beautiful, with semidouble cream-colored flowers marked with greenish stripes and narrow red lines along the centers of the petals. With age these flowers become more or less uniformly pink, and the young foliage is greenish brown.

DOUBLE WHITE

Two varieties may be included in the double-white group, both of which bloom late. The best representative of the group is probably Shirotae, which has large double or semidouble fragrant flowers, about $1\frac{1}{2}$ inches wide, in short-stemmed clusters of two to five. Nurseries sometimes list this as Mount Fuji. Another excellent variety, Amayadori, has pendent clusters of slightly smaller flowers which usually are faintly tinged with pink on the tips of the petals.

SINGLE PINK

Members of the single-pink group, though classed as single, frequently have one or two extra petals. One of the finest is Mikurumagaeshi (pl. 4) with bronze-green young foliage, deep-pink pointed buds, and flowers in drooping clusters of two to four. These are single, or nearly so, white with a pink tinge, and nearly 2 inches across. The Japanese name means "returning the carriage," referring to a tradition that one of the early emperors passed by the tree and was so impressed that he returned to view it again. Ariake, which signifies "dawn" in Japanese, resembles closely Mikurumagaeshi, but has lighter, slightly smaller, almost white flowers and is more inclined to have a few extra petals.



THE YOSHINO, A SINGLE-PINK VARIETY

Nearly a thousand trees of this variety border the Tidal Basin in Potomac Park, Washington, D. C.



THE ICHIYO, A DOUBLE LIGHT-PINK VARIETY

The flowers of the Ichiyo, at first clear pink, become nearly white with age and are borne in drooping clusters of three or four. (Natural size)



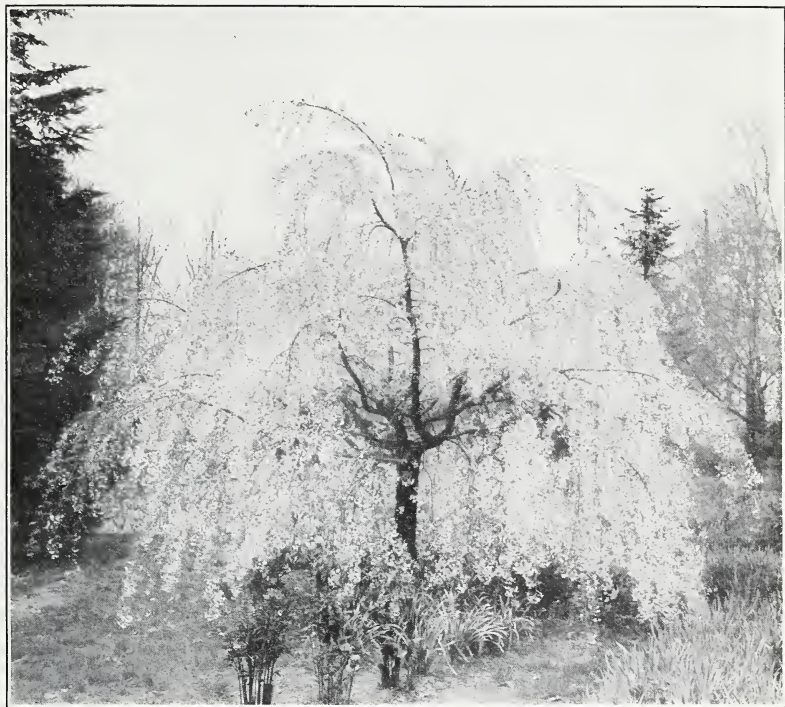
THE KWANZAN, A DOUBLE DEEP-PINK VARIETY

The Kwanzan is one of the finest of the double-pink flowering cherries, with the individual flowers up to 2 inches across. (Slightly reduced)



THE MIKURUMAGAESHI, A LARGE SINGLE-PINK VARIETY

With large pinkish white single flowers in drooping clusters, this variety is an attractive sight in early spring. (Natural size)



THE SHIDAREHIGANZAKURA, A SINGLE-PINK VARIETY

Very early in the spring the pendulous branches of this variety are densely covered with single light-pink flowers. The tree shown is growing near Washington, D. C.

In this group should also be included the northern form of *Yamazakura* (*Prunus serrulata sachalinensis*), which is hardy and long-lived, developing under favorable circumstances into a large and shapely tree 80 or more feet in height. The single pink flowers are $1\frac{1}{2}$ inches across and the leaves are bronze-green when young, becoming yellow and crimson in autumn.

SINGLE WHITE

Takinioi, which means "fragrant waterfall" in Japanese, is possibly the finest representative of the single-white group. The tree is low and spreading, and the very fragrant flowers, $1\frac{1}{4}$ inches wide, are freely borne in clusters of three and four. Generally similar but with inodorous flowers and developing into a larger tree of upright habit is Shirayuki. Both varieties have pure white flowers, although the buds show a pink tinge. The latter variety is usually one of the earliest to bloom, closely following Yoshino.

PRUNUS SUBHIRTELLA

Probably the most attractive variety of *Prunus subhirtella* is the pendulous form known to the Japanese as Shidarehiganzakura (pl. 5) and to some nurserymen as the Rosebud cherry. Early in the spring, at the same time or even before the forsythias bloom, its slender pendulous branches are covered with myriads of small single-pink flowers. Individual trees sometimes become 35 or more feet in height, resembling huge pink cascades. Another excellent variety is a small, much-branched, very floriferous tree of spreading habit, known as Higanzakura in Japan, where it is widely cultivated. A variety considered to be the wild prototype of the species is Beni-higanzakura, which grows to be a large upright tree, sometimes 60 feet tall, with massive wide-spreading branches. It is indigenous not only to Japan but also to central China.

Besides these single-flowered varieties there is also a double form, the Jugatsuzakura or "October bloomer." In addition to the usual spring period of blooming, this variety bears a few flowers again in the fall. At times, however, this habit is reversed, the larger crop of flowers appearing in the fall.

PRUNUS SIEBOLDII

Except for the dense gray pubescence which covers the leaves of *Prunus sieboldii*, known to the Japanese as the Naden, it is very similar to certain varieties included under *Prunus serrulata* and, in fact, has often been placed by horticulturists in that category. Naden develops into a rather small, erect tree, 15 feet in height, with stout branches and smooth gray bark. The flowers are double or semidouble, about $1\frac{1}{2}$ inches across, in clusters of three to six, and normally pink, though at times inclined to be pinkish white.

PRUNUS YEDOENSIS

The Yoshino, as *Prunus yedoensis* is known to the Japanese, is a fast-growing tree of spreading habit, up to 45 feet in height, with stout branches and smooth pale-gray bark which becomes darker and rougher in old trees. The slightly fragrant single flowers, pink to nearly white, and usually a little more than an inch across, are in few-flowered clusters and commonly appear in advance of the leaves.

The pinkish flowers against the pale-gray bark produce an especially pleasing color effect. The small globular fruits are black, with very little flesh.

The Yoshino is one of the most popular cherries among the Japanese, who have planted more than 50,000 trees in the immediate vicinity of Tokyo and who make its spring flowering the occasion for a national holiday. There are trees in the Imperial Botanic Gardens at Koishikawa, Japan, over 50 years old. At Washington, D. C., there is a collection of nearly 1,000 trees planted around the Tidal Basin in Potomac Park (pl. 1), and great crowds visit the park when these bloom in early spring. They were set out in 1912 and are now large, handsome trees.

HARDINESS

At the present time it is known that the flowering cherries can be grown satisfactorily throughout the Eastern States generally, with the exception of the far South and extreme North, where sufficient tests have not yet been made. The fact that the fruiting types of cherries do not succeed in southern areas may indicate a probable lack of success with the flowering types. On the Pacific coast, from central California to Washington, the flowering cherries do well.

The flowering-cherry collections at Rochester, N. Y., and, with some exceptions, at Jamaica Plain, Mass., have withstood successfully the winters of those sections, although in both instances the proximity of a large body of water has doubtless tempered the extreme cold. At Jamaica Plain a number of varieties, including the Fugenzo, Kwanzan, Shirofugen, Ichiyo, and Kirin, have proved entirely hardy. These are recommended for growing in northern New England by E. H. Wilson, who considers them to be derived from *Prunus serrulata sachalinensis*. The different forms of *P. subhirtella* are also hardy there. The remaining varieties of *P. serrulata* mentioned in this circular almost always suffer at Jamaica Plain from winterkilling of the flower buds.

In general, it may be said that the flowering cherries can be grown throughout the same areas as the peach, and even somewhat farther north.

FRUITING HABITS

The double-flowering cherries do not produce fruits, so far as is known, and only occasionally are fruits found on the semidouble forms. Even the single varieties fruit very sparingly, with a few regional exceptions. This nonfruiting habit is generally true of the trees in the vicinity of Washington, D. C., possibly because of late spring frosts. At the United States Plant Introduction Garden, Chico, Calif., however, moderate crops are borne practically every year by the single forms, and at the Arnold Arboretum, Jamaica Plain, Mass., nearly all of the single-flowering cherries bear good crops of seeds annually. Unusually late frosts sometimes injure the flowers of the Yoshino (*Prunus yedoensis*) at the arboretum, and the result is a very light crop. Further tests with the flowering cherries will no doubt indicate other regions favorable to seed production.

SOIL AND MOISTURE

In any reasonably good, well-drained soil, with average moisture, these cherries should thrive. In general, the same soil conditions should obtain under which the fruiting types of cherries do best.

PROPAGATION

Budding and bench grafting are both satisfactory methods of propagating the double-flowering cherries. Varieties derived from *Prunus serrulata* and also the Naden (*P. sieboldii*) may be worked on seedlings of the single-flowered forms of the former species, or on mazzard. Preliminary trials with mahaleb as a stock have shown it to be entirely unsatisfactory. Wilson (?) strongly recommends seedlings of *P. serrulata sachalinensis*, the Yamasakura of northern Japan, as a stock for *P. serrulata* varieties. This is a vigorous, tall-growing tree, the hardiest of all the Japanese cherries, and preliminary tests indicate it as somewhat hardier than mazzard. In Japan the common practice is to graft in early spring on Mazakura (*P. serrulata* forma *lannesiana*), a comparatively short-lived form from the warmer parts of Japan which is popular with Japanese nurserymen because, in that country at least, it roots readily from cuttings. In hardiness this stock is comparable to mazzard.

Varieties of *Prunus subhirtella* should be budded or grafted on their own seedlings for most satisfactory results, although a small percentage of *P. subhirtella pendula* seedlings show a more or less pendulous habit.

The Yoshino cherry (*Prunus yedoensis*) may be propagated by seeds, although unseasonable weather and lack of proper fertilization are probably to be blamed for the failure of many trees to set fruit.

Other cherry stocks, except those already mentioned, have not yet been tried by this department.

Propagation by cuttings has not as yet proved very successful. Hardwood and softwood cuttings of ornamental varieties in experimental plantings gave only an occasional rooted plant, and none of the double-flowering varieties formed roots. Hardwood cuttings of *Prunus serrulata* forma *lannesiana*, which is used as understock, taken in February and planted in sand in outside frames, gave a successful rooting of about 30 per cent, while cuttings taken at the same time and put in sand in a cool greenhouse with bottom heat gave a rooting of 90 per cent.

PLANTING, PRUNING, AND GENERAL CARE

The double-flowering cherries are seen to best advantage when planted singly or in small groups against a dark background, either of evergreens or of some structure which harmonizes in color with the flowers. The single-flowering forms also show up well under similar situations, although they are more suitable than the double varieties for planting along parkways and avenues. Care must be taken to allow enough room between the trees, especially those of spreading habit; 40 feet apart would be a good general planting practice. Furthermore, the trees require plenty of sunlight for best development. Since they are grown primarily for the sake of the flowers, pruning the trees is not advisable, except to remove dead wood or to correct some undesirable tendency in habit. Cultivation and fertilizing are helpful, especially with young trees, and should be carried on in the same general way as with the cherries of fruiting types.

DISEASES AND PESTS

In general, the flowering cherries are subject to the same diseases and pests as other rosaceous woody plants, and similar control measures are advocated. So far as is known, no disease or pest has assumed serious proportions among these trees in this country.

Occasionally trees are infested with the larvae of the oriental peach moth (*Laspeyresia molesta*), which blackens the ends of some of the branches. No effective remedy has yet been found against this moth, but it has not proved a serious pest as far as the Japanese cherries are concerned.

A few of the trees in Potomac Park, Washington, D. C., have been found to be affected with a witches'-broom caused by the fungus *Exoascus cerasi* (1). This infection is not widespread, however, and can be easily controlled by cutting out and burning the diseased parts.

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